

SEA LEVEL RISE AND SALTWATER INTRUSION INTO AQUIFERS ALONG THE SOUTHEAST FLORIDA COAST

Karin A. Smith, P.G.

South Florida Water Management District, West Palm Beach, FL, USA

In southeast Florida, the primary source of fresh groundwater for human needs is the Surficial Aquifer System (SAS). The Biscayne aquifer, part of the SAS in this area, is among the most productive aquifers in the world, and on average, provides more than one billion gallons of water per day for potable and irrigation needs in Palm Beach, Broward, and Miami-Dade counties combined. Because the SAS is an essential part of the region's water supply, protecting the groundwater system from saltwater intrusion is important. The low-lying southeast coast of Florida is particularly susceptible to lateral saltwater intrusion due to multiple factors, including rising sea levels. Slowing the movement of the interface results in a more resilient system.

The South Florida Water Management District (SFWMD) and United States Geological Survey are actively monitoring and mapping the location of the underground saltwater interface within freshwater aquifers. The historical and projected movement of saltwater inland, together with current water use data and future water use projections, helps identify existing users of ground water that are vulnerable to sea level rise. Monitoring programs are used to guide operations and regulatory programs and to provide early warning of threats to water supply.

The SFWMD is implementing a set of science-based water and climate resilience metrics to track and document shifts and trends in District-managed water and climate observed data. Saltwater intrusion is a metric impacted by the climate drivers of sea level rise and potential changes in rainfall. As part of the District's communication and public engagement priorities, the resilience metrics products inform stakeholders, the general public, and partner agencies about the District's resilience efforts, while supporting local resiliency strategies.

PRESENTER BIO: Karin Smith is a Principal Hydrogeologist with over 30 years of experience in water supply regulation, research, modeling and planning. As a Water Supply Plan manager, her team determines future south Florida water needs, both human and environmental, and identifies sources, constraints and projects to meet those needs.